

As shown above, Applicants have amended independent Claims 1, 10, 19, 20, 29, and 38 in terms that more clearly define the present invention. Applicants submit that these amended independent claims, together with the remaining claims dependent thereon, are patentably distinct from the cited prior art for at least the following reasons.

The aspect of the present invention set forth in Claim 1 is an image search apparatus for searching an image database for desired image data, where the image database stores a plurality of image data in correspondence with image feature amounts for each of the image data. The apparatus includes display means for displaying a plurality of image data, selection means for selecting image data designated by a user from the plurality of image data, image feature amount computing means for computing an image feature amount of the image data selected by the selection means, and image similarity computing means for computing image similarity on the basis of the image feature amount computed by the image feature amount computing means, and the image feature amounts of the image data stored in the image database.

One important feature of Claim 1 is to perform a similar image search using image data designated by a user from a plurality of image data (each of which is candidate image data for a search condition image) in a display as a search condition. By virtue of this arrangement, an efficient similar image search can be executed by having the user select a desired image data from a display of the plurality of image data as a search condition, without having to draw an illustration of an image as a search condition.

Applicants submit that a combination of *Hui et al.* and *Murakawa*, assuming such combination would even be permissible, would fail to teach or suggest performing a similar

image search using image data designated by a user from a plurality of image data in a display as a search condition.

*Hui et al.* relates to a computer-executable multimedia application which collects images from one or more sources, displays a plurality of the collected images on a computer-generated workbench, manipulates the images on the workbench, composes the images, and publishes a set of the images as an album or the like. *Hui et al.* discloses a system for creating/correcting a set of images stored in a FlashPix file which contains the images in multiple resolutions. The *Hui et al.* system provides an image correction tool for a plurality of images. When a plurality of images is corrected, the plurality of images is searched by search parameters, such as keywords. Nothing has been found in *Hui et al.* that teaches or suggests performing a similar image search using image data designated by a user from a plurality of image data in a display as a search condition.

Accordingly, Applicants submit that Claim 1 is patentable over *Hui et al.*, taken alone.

*Murakawa*, as understood by Applicants, relates to a similar-image retrieving apparatus and similar-image retrieving method for retrieving similar images in image database equipment or the like. Apparently, *Murakawa* teaches similar-image retrieving performed by inputting image data as a retrieve condition. The key-role image (key image) as a first image is specified by a user, a similarity between the shape feature quantity of the key image and the shape feature quantity of a retrieval-target comparative image as a second image is calculated and then top s images of the highest similarities are sorted and displayed in a descending order of similarity (See Column 9, lines 61-67). Accordingly, the retrieve condition is not selected by a

user from a plurality of image data in a display. Nothing has been found in *Murakawa* that teaches or suggests performing a similar image search using image data designated by a user from a plurality of image data in a display as a search condition.

Accordingly, Applicants submit that Claim 1 is patentable over the cited art, and respectfully request withdrawal of the rejection under 35 U.S.C. § 103(a).

Independent Claims 10, and 19 are method and computer readable memory claims respectively corresponding to apparatus Claim 1, and are believed to be patentable for reasons substantially similar to those discussed above in connection with Claim 1.

The aspect of the present invention set forth in Claim 20 is an image search apparatus for searching an image database for desired image data, where the image database stores a plurality of image data in correspondence with image feature amounts for each of the image data. The apparatus comprises display means for displaying a drawing area for drawing handwritten information, and a plurality of image data searched on the basis of the handwritten information drawn in the drawing area, selection means for selecting color information of image data designated by a user from the plurality of image data, image feature amount computing means for computing an image feature amount of the image having the color information selected by the selection means, and image similarity computing means for computing image similarity on the basis of the image feature amount computed by the image feature amount computing means, and the image feature amounts of the image data stored in the image database.

One important feature of Claim 20 is to perform a similar image search using image data having color information of image data designated by a user from a plurality of image data in a display as a search condition. By virtue of this arrangement, in order to set or change

the color information of the image data as the search condition, the user designates a desired color of image data from a plurality of image data, without having to designate the color on the basis of numerical values, such as R, G, and B luminance values, or the like. Accordingly, color information of image data as a search condition for a similar image search process can easily be designated by the user, because the user selects color information of the desired image data from a plurality of image data in a display without having the user designate by means of R, G, and B values.

Applicants submit that for reasons similar to those discussed above in connection with Claim 1, a combination of *Hui et al.* and *Murakawa*, assuming such combination would even be permissible, would fail to teach or suggest performing a similar image search using image data having color information of image data designated by a user from a plurality of image data in a display as a search condition. In the *Hui et al.* system, when a plurality of images are corrected, the plurality of images are searched by search parameters, such as keywords. Whereas, in the *Murakawa* system, similar-image retrieving is performed by inputting image data as a retrieve condition. Nothing has been found in either *Murakawa* or *Hui et al.* that teaches or suggests performing performing a similar image search using image data having color information of image data designated by a user from a plurality of image data in a display as a search condition.

Accordingly, Applicants submit that Claim 20 is patentable over the cited art, and respectfully request withdrawal of the rejection under 35 U.S.C. § 103(a).

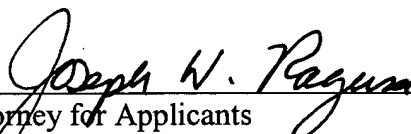
Independent Claims 29, and 38 are method and computer readable memory claims respectively corresponding to apparatus Claim 20, and are believed to be patentable for reasons substantially similar to those discussed above in connection with Claim 20.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

  
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VERSION WITH MARKINGS TO SHOW CHANGES MADE TO CLAIMS

1. (Amended) An image search apparatus for searching an image database [that stores] for desired image data, said image database storing a plurality of image data [for desired image data] in correspondence with image feature amounts for each of the image data, comprising:

[storage means for storing the plurality of image data in correspondence with image feature amounts of the image data;]

display means for displaying a plurality of image data;

selection means for selecting image data designated by a user from the plurality of image data;

[input means for inputting an image using an input window;]

image feature amount computing means for computing an image feature amount of the image [input by said input means] data selected by said selection means;

image similarity computing means for computing image similarity on the basis of the image feature amount computed by said image feature amount computing means, and the image feature amounts of the image data stored in said [storage means;] image database.

[image display means for displaying a list of image data as search results on the basis of the image similarity computed by said image similarity computing means; and

read-out means for reading out the image data stored in said storage means into the input window.]

4. (Amended) The apparatus according to claim 1, wherein said [image] display means displays image data randomly selected from the image data stored in said [storage means] image database.

5. (Amended) The apparatus according to claim 1, wherein said [image] display means displays designated image data of the image data stored in said [storage means] image database.

6. (Amended) The apparatus according to claim 1, wherein said [image] display means comprises search means for searching for desired image data by designating attribute information appended to the image data, and  
when a search is made by said search means, said [image] display means displays a list of image data found by the search of said search means.

10. (Amended) An image search method for searching an image database [that stores] for desired image data, said image database storing a plurality of image data [for desired image data] in correspondence with image feature amounts for each of the image data, comprising:

[the storage step of storing the plurality of image data in a storage medium in correspondence with image feature amounts of the image data;]

a display step, of displaying a plurality of image data;

a selection step, of selecting image data designated by a user from the plurality of image data;

[the] an image feature amount computing step, of computing an image feature amount of an image [input on an input window] data selected by said selection step;

[the] an image similarity computing step, of computing image similarity on the basis of the image feature amount computed in the image feature amount computing step, and the image feature amounts of the image data stored in [the storage medium in the storage step;] said image database.

[the image display step of displaying a list of image data as search results on the basis of the image similarity computed in the image similarity computing step; and the read-out step of reading out the image data stored in the storage step into the input window.]

13. (Amended) The method according to claim 10, wherein the [image] display step includes [the] a step of displaying, as a default window, image data randomly selected from the image data stored in [the storage medium in the storage step] said image database.



14. (Amended) The method according to claim 10, wherein the [image] display step includes [the] a step of displaying, as a default window, designated image data of the image data stored in [the storage medium in the storage step] image database.

15. (Amended) The method according to claim 10, wherein the [image] display step comprises [the] a search step, of searching for desired image data by designating attribute information appended to the image data, and

the [image] display step includes [the] a step of displaying a list of image data found by a search in the search step, when the search is made in the search step.

19. (Amended) A computer readable memory that stores a program code of an image search for searching an image database [that stores] for desired image data, said image database storing a plurality of image data [for desired image data] in correspondence with image feature amounts of each of the image data, comprising:

[a program code of the storage step of storing the plurality of image data in a storage medium in correspondence with image feature amounts of the image data;]

program code for a display step, of displaying a plurality of image data;

program code for a selection step, of selecting image data designated by a user from the plurality of image data;

[a] program code [of the] for an image feature amount computing step,  
of computing an image feature amount of [an image input on an input window] the image data  
selected by said selection step;

[a] program code [of the] for an image similarity computing step, of computing image similarity on the basis of the image feature amount computed in the image feature amount computing step, and the image feature amounts of the image data stored in [the storage medium in the storage step;] said image database.

[a program code of the image display step of displaying a list of image data as search results on the basis of the image similarity computed in the image similarity computing step; and

a program code of the read-out step of reading out the image data stored in the storage step into the input window.]

20. (Amended) An image search apparatus for searching an image database [that stores] for desired image data, said image database storing a plurality of image data [for desired image data] in correspondence with image feature amounts for each of the image data, comprising:

[storage means for storing the plurality of image data in correspondence with image feature amounts of the image data;

input means for inputting an image using an input window;]

display means for displaying a drawing area for drawing handwritten information, and a plurality of image data searched on the basis of the handwritten information drawn in the drawing area;

selection means for selecting color information of image data designated by a user from the plurality of image data;

image feature amount computing means for computing an image feature amount of the image [input by said input means] having the color information selected by said selection means;

image similarity computing means for computing image similarity on the basis of the image feature amount computed by said image feature amount computing means, and the image feature amounts of the image data stored in said [storage means;] image database.

[image display means for displaying a list of image data as search results on the basis of the image similarity computed by said image similarity computing means; and

designation means for designating a color used in the image to be drawn by said input means on the basis of the image data displayed by said image display means.]

21. (Amended) The apparatus according to claim 20, wherein [said designation means designates] the color information is selected [used in the image to be drawn by said input means] by indicating one pixel in the image data [displayed by said image display means].

22. (Amended) The apparatus according to claim 20, wherein [said designation means designates] the color information is selected [used in the image to be drawn by said input means] by indicating a predetermined region in the image data [displayed by said image display means].

23. (Amended) The apparatus according to claim 22, wherein the color information designated by indicating the predetermined region is an average value of pixel values contained in the small region.

24. (Amended) The apparatus according to claim 20, wherein [said designation means designates] the color information is selected [used in the image to be drawn by said input means] on the basis of image data to be displayed by said [image] display means.

25. (Amended) The apparatus according to claim 20, wherein [said designation means designates] the color information is selected [used in the image to be drawn by said input means] on the basis of image data which corresponds to image data displayed by said [image] display means, and is stored in said [storage means] image database.

26. (Amended) The apparatus according to claim 20, wherein [said designation means designates] the color information is selected [used in the image to be drawn by said input means] on the basis of an image drawn on [a] the drawing area [used by said input means].

27. (Amended) The apparatus according to claim 20, wherein said image feature amount computing means computes the image feature amount of the drawn image every time the image in the drawing area is modified [by said input means].

28. (Amended) The apparatus according to claim 20, further comprising display control means for controlling to display the [input window] drawing area within a display window displayed by said [image] display means.

29. (Amended) An image search method for searching an image database [that stores] for desired image data, said image database storing a plurality of image data [for desired image data] in correspondence with image feature amounts for each of the image data, comprising:

[the storage step of storing the plurality of image data in a storage medium in correspondence with image feature amounts of the image data;]

a display step, of displaying a drawing area for drawing handwritten information, and a plurality of image data searched on the basis of the handwritten information drawn in the drawing area;

a selection step, of selecting color information of image data designated by a user from the plurality of image data;

[the] an image feature amount computing step, of computing an image feature amount of an image [input on an input window] having the color information selected by said selection step;

[the] an image similarity computing step, of computing image similarity on the basis of the image feature amount computed in the image feature amount computing step, and the image feature amounts of the image data stored in [the storage medium in the storage step] said image database;

[the image display step of displaying a list of image data as search results on the basis of the image similarity computed in the image similarity computing step; and the designation step of designating a color used in the image to be drawn on the input window on the basis of the image data displayed in the image display step.]

30. (Amended) The method according to claim 29, wherein [the designation step includes the step of designating] the color information is selected [used in the image to be drawn on the input window] by indicating one pixel in the image data [displayed by said image display step].

31. (Amended) The method according to claim 29, wherein [the designation step includes the step of designating] the color information is selected [used in the image to be drawn on the input window] by indicating a predetermined region in the image data [displayed in the image display step].

32. (Amended) The method according to claim 31, wherein the color information designated by indicating the predetermined region is an average value of pixel values contained in the small region.

33. (Amended) The method according to claim 29, wherein [the designation step includes the step of designating] the color information is selected [used in the

image to be drawn on the input window] on the basis of image data to be displayed in [the image] said display step.

34. (Amended) The method according to claim 29, wherein [the designation step includes the step of designating] the color information is selected [used in the image to be drawn on the input window] on the basis of image data which corresponds to image data displayed in [the image] said display step, and is stored in [the storage medium in the storage step] said image database.

35. (Amended) The method according to claim 29, wherein [the designation step includes the step of designating] the color information is selected [used in the image to be drawn at said input step] on the basis of an image drawn on [a user] the drawing area.

36. (Amended) The method according to claim 29, wherein the image feature amount computing step includes the step of computing the image feature amount of the drawn image every time the image [input on the input window] in the drawing area is modified.

37. (Amended) The method according to claim 29, further comprising [the] a display control step, of controlling to display the [input window] drawing area within a display window displayed in the [image] display step.

38. (Amended) A computer readable memory that stores a program code of an image search for searching an image database [that stores] for desired image data, said image database storing a plurality of image data [for desired image data] in correspondence with image feature amounts for each of the image data, comprising:

[a program code of the storage step of storing the plurality of image data in a storage medium in correspondence with image feature amounts of the image data;]

program code for a display step, of displaying a drawing area for drawing handwritten information, and a plurality of image data searched on the basis of the handwritten information drawn in the drawing area;

program code for a selection step, of selecting color information of image data designated by a user from the plurality of image data;

[a] program code [of the] for an image feature amount computing step, of computing an image feature amount of an image [input on an input window] having the color information selected by said selection step;

[a] program code [of the] for an image similarity computing step, of computing image similarity on the basis of the image feature amount computed in [the] said image feature amount computing step, and the image feature amounts of the image data stored in [the storage medium in the storage step;] said image database.

[a program code of the image display step of displaying a list of image data as search results on the basis of the image similarity computed in the image similarity computing step; and



a program code of the designation step of designating a color used in the image to be drawn on the input window on the basis of the image data displayed in the image display step.]

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